Ethno-Pharmacological knowledge of medicinal plants used by Andh Tribe in Washim district, Maharashtra India

Synopsis of the thesis for the degree of

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DECLARATION

I hereby declare that this submission is of my own research work entitled 'Ethno-Pharmacological knowledge of medicinal plants used by Andh tribes in Washim district, Maharashtra India' and that, to the best of my knowledge and belief. It contains no material or data of other researchers except previously published information which has been duly acknowledged. The present research work has not been submitted for the award of any other degree or diploma of any university or other institute of higher learning, except for the award of Ph.D. degree of SRTM University, Nanded.

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Introduction:

Ethnopharmacology involves the study of medicines derived from naturally occurring substances such as plants and fungi, which have been traditionally used by specific groups of people for medicinal purposes. The World Health Organization (WHO) states that approximately 65-80% of the developing world's population relies on plants due to poverty and limited access to modern medicine (Calcalixto, 2005). In recent times, the utilization of ethnobotanical knowledge in medicinal plant research has garnered significant attention within the scientific community (Heinrich, 2000). Nature has been a longstanding source of medicinal plants, yielding an impressive number of modern drugs from natural sources. The medicinal plant sector holds a pivotal position in sociocultural, spiritual, and medicinal domains, particularly within India's culturally diverse and floristically rich landscape. India serves as a repository of ethno-botanical knowledge, with a substantial portion of its population still relying on plant-based medicines due to their availability, affordability, minimal side effects, and cultural acceptance.

Medicinal plants have gained global recognition for their effective curative properties in alternative healthcare systems. Some plant-derived drugs used in modern medicine trace their origins to ethnobotanical practices. Ethnobotany is poised to play an increasingly crucial role in sustainable development and biodiversity conservation. Out of nearly 17,000 higher plants documented in India, around 7,500 are reported to be used medicinally by rural and tribal communities. Ethnobotany and ethnomedical studies are integral to identifying new medicinal plants. Ethnomedicine is a widely practiced system of medicine among tribal and aboriginal populations, who have relied on herbal remedies for generations, passing down knowledge from one generation to the next, often without written documentation. Despite this wealth of knowledge, some of it has been lost due to improper documentation, risking its disappearance. To address potential long-term toxic effects of synthetic drugs, herbal remedies are being embraced for treating chronic diseases. Traditional medicinal systems in India include Ayurveda, Siddha, and Unani. The Rigveda, dating between 3500 B.C. and 1800 B.C., contains some of the earliest recorded information on medicinal plants. Indigenous and local communities hold extensive traditional knowledge about the uses of herbs. Traditional healers serve as a crucial source of information regarding the medicinal properties of plants. The rural population places great faith in this indigenous knowledge to address various ailments. India boasts a rich ethnobotanical heritage, with over 400 different tribal and ethnic groups. Beyond tribal communities, many forest dwellers and rural inhabitants also possess unique plant knowledge. Trees and plants offer a multitude of benefits, including providing food, shelter, clothing, and medicine. They play a vital role in drug discovery, with many blockbuster drugs being derived from plant sources. Tribal populations are an integral part of Indian culture and society. Herbal medicines are in high demand due to their lasting effects and minimal side effects.

Tribal communities utilize numerous wild plant species to create herbal preparations for health practices. Their knowledge, acquired through trial and error, has been passed down through generations. Based on this traditional knowledge, they have developed their own pharmacopoeia, representing a valuable cultural heritage. The Scheduled Tribes (ST) in India are a significant herbal community, encompassing 212 tribes across 14 states. These tribes have distinct social, ecological, and political structures, often residing in hilly or forested areas

where they practice hunting and gathering. Their extensive knowledge of medicinal plants and their uses underscores the depth of their traditional wisdom.

Review of Literature:

The current research blends primary and secondary data to create a comprehensive understanding of the subject. Various reliable sources, including books, newspapers, magazines, articles, and Google Maps, contribute to the data collection process.

Research articles on platforms like ResearchGate have significantly influenced this study. Additionally, atlas books play a crucial role in locating tribal regions within Maharashtra, India. Direct interactions with tribal members form a primary source of information for this study. Their knowledge and practices regarding medicinal plants, their uses, and remedies have been paramount.

Throughout history, medicinal plants have held a significant role worldwide in treating and preventing diseases. The Andh tribal community, situated in Washim district, continues to depend on medicinal plants for various purposes. Their knowledge encompasses first aid remedies, treatment for common ailments like cough, cold, fever, headaches, and even remedies for poisonous bites.

This study was initiated to identify traditional healers practicing herbal medicine among the Andh tribals in Washim district, Maharashtra. It aims to capture their indigenous knowledge regarding the use of medicinal plants, particularly the most commonly used ethnomedicinal plants.

Aim:

The primary goal of this study is to identify traditional healers within the Andh tribal community and explore their practices of herbal medicine. The focus is on understanding their indigenous knowledge concerning the utilization of medicinal plants, especially those with common ethnomedicinal applications.

Objectives:

1. To collect information about the traditional usage of plants from the Andh tribal community in the area.
2. To assess the diversity of ethnomedicinal plant species employed by the Andh tribes.
3. To document traditional medical practices for therapeutic applications.
4. To evaluate the roles of medicinal plants within medical, pharmaceutical, Unani, and Ayurveda practices.
5. To examine various plant parts used for treating different diseases.
6. To potentially discover new medicines for disease management.

Purpose:

The primary purpose is to contribute to knowledge preservation and the safeguarding of national heritage. Additionally, this research seeks to uncover new or lesser-known applications of medicinal plants that could lead to novel medicinal uses.

Importance:

1. The indigenous knowledge of medicinal plant uses holds potential for both research and modern medicine development.
2. This study provides valuable insights into traditional medicinal knowledge systems and plants with therapeutic value.

Need:

1. The potential of ethnomedicinal plants warrants conservation and further validation for optimized utilization and documented dissemination.
2. Exploring eco-friendly and bio-friendly plant-based products for preservation and the treatment of human diseases is crucial.
3. The creation and maintenance of a digital database of traditional knowledge is essential for the present and future generations' benefit.

Research Methodology

Study Area:

The research is focused on the Washim district, which is a part of Maharashtra, India. The district spans an area of 5,150 km², situated at coordinates 20.1390°N, 77.1025°E. It falls within the Amravati division and is located in the western region of Vidarbha. The prominent Penganga River runs through the district, encompassing six talukas: Mangrulpir, Karanja, Washim, Malegaon, Risod, and Manora. The district features hilly ranges that extend across the tehsils of Malegaon, Mangrulpir, and Manora.

Andh Tribe:

The Andh people are inhabitants skilled in honey collection, food harvesting, and medicine preparation. They derive income from selling honey, wild fruits, milk, ghee, and more. Their homes are constructed using stones, soil, and wood. Being one of the oldest Hindu communities in India, they trace their roots back to the Satvahan period. In Maharashtra, the Andh tribe comprises a population of 474,110 (as per the 2011 census). Their distribution is mainly observed in Parbhani, Yavatmal, Akola, and Washim districts. Due to the absence of separate recognition as an Adiwasi religion, they are categorized under the Hindu community. The Andh tribe members speak languages such as Telugu, Hindi, and Marathi.

Data Collection

An ethnobotanical survey was conducted from November 2022 to June 2023 to gather information on medicinal plants utilized by the Andh tribes across various regions of the Washim district in Maharashtra. Multiple visits were made, during which interactions were held with vaidyas (traditional healers). Through structured questionnaires and discussions, ethnobotanical data were systematically recorded in a predefined format. The collected information about medicinal plants and their uses was meticulously verified and classified with the assistance of experts, and herbarium specimens were prepared to ensure accurate identification and documentation.

Materials & Methods

A comprehensive survey of traditional medicinal plants in the Washim district of Maharashtra was carried out to obtain an extensive collection of information about these plants. The survey spanned from December 2022 to June 2023. Information about the medicinal uses of indigenous plants was gathered through consultations with local residents, experienced elderly individuals, traditional medical practitioners, local herbal medicine vendors, and existing literature.

The survey targeted tribal villages, involving regular tours to tribal areas. Special emphasis was placed on interacting with local vaidas (traditional healers), ojhas (shamans), traditional herbal practitioners, and knowledgeable members of tribal communities. Information was collected through interviews, observations, and discussions that took place during field surveys. This approach aimed to comprehensively capture the indigenous knowledge regarding traditional medicinal plants used by the Andh tribes.

The collected data underwent a meticulous validation process to ensure its accuracy and reliability. The combination of direct interactions, structured questionnaires, expert consultations, and herbarium specimen preservation contributes to the robustness and authenticity of the gathered ethnobotanical information.

The discussions unveiled indigenous species' local names, the specific plant parts employed, and the formulations of herbal remedies utilized by traditional healers and tribal communities. The species underwent rigorous scientific identification, aligning them with their botanical names and associated author indices. These identified plants, documented after collaboration with local taxonomists and the creation of herbarium specimens, were subsequently cross-referenced with established flora references for validation. Tribal practitioners possess a profound familiarity with medicinal plants within their environment, enabling them to effectively address prevalent common ailments. This reservoir of traditional knowledge contributes significantly to the management of everyday health concerns.

Results and Discussion

The documentation of indigenous ethno-medicinal knowledge among the Andh tribes residing in Washim district has yielded a valuable insight into the region's abundant floral and faunal diversity. The findings from this study unveiled that approximately 40 plant species are harnessed by the Andh tribes for herbal remedies catering to various ailments. The compilation of these plant species is organized alphabetically based on their botanical names. Among the tribal community, the most commonly utilized plant parts include fruits and leaves, followed by seeds, roots, bark, whole plants, flowers, stems, rhizomes, bulbs, and gums.

In the realm of healthcare, traditional systems of medicine, alongside Homeopathy and folkcare medicine, continue to hold a significant place within the population's well-being. Notably, the tribal population in India heavily relies on the therapeutic use of medicinal plants to address their healthcare requirements. This reliance underscores the enduring importance of traditional medicinal knowledge and practices, highlighting their role in supporting the health and wellness needs of these communities.

Total Plants:

A diverse range of plant families (28 in total) have been identified, each contributing to the extensive ethno-medicinal knowledge within this study:

1. Amarathaceae - 1 species	15. Ebenaceae - 1 species
2. Liliaceae - 3 species	16. Dioscoraceae - 1 species
3. Meliaceae - 1 species	17. Euphorbiaceae - 2 species
4. Acanthaceae - 2 species	18. Moraceae - 3 species
5. Rutaceae - 1 species	19. Malvaceae - 2 species
6. Scrophulanaceae - 1 species	20. Crassulaceae - 1 species
7. Caesalpinaceae - 5 species	21. Verbenaceae - 2 species
8. Fabaceae - 2 species	22. Lythraceae - 1 species
9. Anacardiaceae - 1 species	23. Mimosaceae - 1 species
10. Apocyanaceae - 3 species	24. Lamiaceae - 2 species
11. Carlaceae - 1 species	25. Cactaceae - 1 species
12. Zingiberaceae - 2 species	26. Sapindaceae - 1 species
13. Cucurbitaceae - 3 species	27. Combretaceae - 2 species
14. Solanaceae - 3 species	28. Asteraceae - 1 species

Through discussions with vaidus and local residents, it has become evident that the utilization of locally available medicinal plants is deeply ingrained in common and traditional practices. A comprehensive total of 50 different medicinal plant species, spanning these 28 diverse families, have been extensively explored in this research. Their various uses and applications within traditional healthcare have been meticulously documented and discussed, shedding light on their significance and potential benefits.

Sr No	Botanical Name	Family	Local Name	Part used	Uses/ailments treated
1	Achyranthes aspera var. aspera L.	Amaranthaceae	Aghada	Leaves	Cough
2	Aloe vera L.	Liliaceae	Korpad	Leaves	Skin diseases,healing wounds
3	Asparagus racemosus	Liliaceae	Shatavari	Tuber	Lactation
4	Azadirachta indica	-meliaceae	Kadulimb	Young branch, fruit, leaf	Brushing teeths, skin diseases, llos weights
5	Adhatoda vasica	A canthaceae	Adulsa	Leaf, flower, root	Asthma, Diarhoea, eye disorder
6	Aegle marmelos Correa	Rutaceae	Bel	Leaves	Fever,piles, diabetes
7	Bacopa monneien	Scrophulariaceae	Bhramhi	Leaves	Menstrual disorder
8	Bahunia purpurea L.	Caesalpinaceae	Motha apta	Leaves	Scorpion bite
9	Bauhinia racemosa Lam.	Caesalpinaceae	Apta	Root	Joint pain
10	Butea monosperma var.	Fabaceae	Palas	Flower	Reduce excessive heat
11	Buchanania Lanzan spr.	Anacardiceae	Charoli	Fruit, seed	Seed paste rubbed over infected bo parts
12	Caloteopis gigantea L	Apocyanaceae	Rui	Leaves	Swelling of stomach
13	Calotropis procera Ait	Apocyanaceae	Rui	Latex	Muscle contraction
14	carissa congesta	Apocyanaceae	Karwand	Root	Skin allergy, itches
15	cassia Occidentalis	Caesalpinaceae	Tarota	Seed	Asthma

16	carica papayac	caricaceae	Papai	Leaf root	Abort early pregnancy,leaf juice f dengue fever, platelet count
17	curcuma longa L.	Ungiberacea	Halad	Rhizome	Wound healing,cough
18	curcuma sativus c.	Cucurbitaceae	Cucmber	Fruit	Diuretic
19	Datura metal c	solanaceae	Dhotra	Leaves	Swelling
20	Datura stramonium L.	solanaceae	Dhatura	fruit	Ulcers,worms
21	Diospyros melanorylon	Ebenaceae	Tembrun	Wood	Good health and early delivery
22	Dioscorea bulbifera L.	Dioscoreaceae	Kandvel	Bulbil	Stomachache
23	Emblica officinalis	Euphorbiacea e	Awla	Fruit	loss of vision, scidity
24	) ficus benghalensis	Moraceae	Wad	Leaves	cracks on feet
25	ficus racemosa	Moraceae	Umbar	Bark	strengthening gums
26	ficus digiosa L	Moraceae	Pimpal	Bark	asthma
27	Hibiscus cannabinus L	Malvaceae	Ambadi	Leaves	laxative
28	Hibiscus rosa sinesis	Malvaceae	Jaswand	Flower	dark black colour hairs
29	Iphigenia pallida Baker	Liliaceae	Lasun Kand	Leaves	perforation of eardrum
30	Justicia adhatoda	Acanthaceae	Adulsa	Leaves	Cough
31	Jatropha curcus L.	Euphorbiaceae	Ratanjot/ Chandrajot	Seed	Dysentry,stomach disorders
32	Kalanchoe pinnata lam..	Crassulaceae	Panphuti	Leaves	muscle pain

33	Lantana camera	Verbenaceae	Tantani	Fruit	menstrual disorders
34	Lawsonia inermis L	lythraceae	Mehendi	Leaves	excessive body heat
35	Lagenaria Siceraria en	Cucurbitaceae d	Bittergourd	Fruit	Jaundice, diabetes, ulcer, piles
36	Mimosa pudica L.	mimosaceae	Lajalu	Leaves	stroke
37	momordica charantia L	Cucurbitaceae d	Karela	Whole plant	burns,antimalerial,antidiabetes
38	ocimum tenuiflorum L.	Lamiaceae	Ran tulas	Leaves	fever,cold
39	opuntia elatior mill.	Cactaceae	Nivdung	Stem	muscle pain
40	Pongamia pinnata L.	Fabaceae	Karanj	seeed oil	whooping cough
41	Saraca asoca	Caesalpiniacea e	Ashok	bark ,seed	Menstrual disorder,kidney stone
42	Sapindus trifoliatus L	Sapindaceae	Ritha	fruit	Anti inflammatory
43	Tamarindus indica L	Caesalpiniacea e	Chich	Leaves	menstrual disorder
44	Terminalia bollirica	-Combretaceae	Behada	Bark	Diptheria
45	Terminalia chebula	-Combretaceae	Hirda	Fruit	Strenthening gums
46	Tagetes erecta L	Asteraceae	Marigold	Whole plant	ulcers, sore eyes, colds
47	Tectona grandis	Lamiaceae	Teak	root	piles, headaches, urinary disorders
48	Vitex negundo L.	Verbenaceae	Nirgudi	Leaves	muscular pain
49	withania Somnifera L	-Solanaceae	Ashwagandh a	leaf, root	reducing weight

50	Zinziber officinale	Zingiberaceae	Adrak	rhizome	Digestive disorder, cough, cold

Observations:

1. The present survey highlights the prevalence of various ailments within tribal communities, including menstrual disorders, headaches, piles, snake and dog bites, dysentery, skin diseases, wound healing, swelling, ulcers, and muscle pain.

2. The high occurrence of these diseases may be attributed to factors such as unhygienic living conditions, inadequate nutritional intake, and limited access to essential education and knowledge.

3. Due to residing in remote villages, tribal individuals face challenges in accessing proper healthcare facilities. Consequently, they rely on freshly prepared herbal remedies for treatment.

4. The follow-up and continuity of treatment among tribal populations appear to be lacking, possibly due to various factors.

5. The diverse range of wild plants serves as a valuable and cost-effective source of medicine for tribal communities.

6. Many of the plants employed by these communities exhibit significant untapped potential. To harness this, rigorous pharmacological and chemical screenings can uncover their bioactive properties. This knowledge can then guide the development of standardized herbal remedies, enhancing our ability to combat specific diseases effectively.

7. Maintaining accurate and detailed clinical records for the study of such herbal preparations is essential, ensuring effective documentation and further research.

These observations shed light on the healthcare challenges faced by tribal communities and underscore the potential of traditional herbal remedies as well as the need for improved healthcare access and research

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Conclusion:

1. Tribal Knowledge and Secrecy: The profound knowledge of plants and their therapeutic potentials is confined to a limited few within tribal communities. Some individuals tend to guard this knowledge as a closely held secret.

2. Conservation of Knowledge and Resources: The significance of conserving not only the medicinally vital plants but also the indigenous knowledge itself is underscored. This preservation is essential for both promoting well-being and ensuring sustainable resource utilization for current and future generations.

3. Challenges and Conservation Efforts: The study concludes that the utilization of various plant species for medicinal purposes is a significant practice among tribal communities. However, the depletion of medicinal plants due to factors such as deforestation and overgrazing poses a threat. Encouraging the cultivation of medicinal plants within farms and the protection of wild species within forests emerges as a vital strategy for the future.

4. Crucial Role of Herbal Medicine: The research emphasizes the pivotal role played by herbal medicine in treating diverse diseases and disorders within tribal groups. The utilization of numerous forest plants, including flowers, seeds, and bark, underscores the rich tapestry of traditional treatments.

In summary, this study highlights the intricacies of tribal herbal knowledge, the need for conservation efforts, and the invaluable role of traditional medicine in the well-being of these communities.

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Course work:

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